These are the Ten Grand Challenges:

Advanced Nuclear – Ninety-eight nuclear reactors produce 60 percent of all carbon-free electricity in the United States. Within the next five years, we need to build one or more advanced reactors to demonstrate the capabilities they may bring – lower cost, increased safety, and less nuclear waste.

Natural Gas – Developing new combustion technologies will make natural gas-fired electric generation more efficient and further reduce carbon emissions.

Carbon Capture – This is the holy grail of clean energy. If we can capture carbon at a cheaper cost and find large scale uses for its byproduct – for example, CO2 to ethanol – coal could be used everywhere in the world.

Better Batteries – Today's Nissan Leaf can travel 226 miles on one charge. A Tesla Model S can travel 335 miles. The price of lithium-ion batteries should fall another 45 percent during the next five years. Better batteries also can one day allow utilities and their customers to store large amounts of electricity during non-peak hours.

Greener Buildings – This still is the real low-hanging fruit. Residential and commercial buildings still consume 39 percent of U.S. energy.

Electric Vehicles – Ten years ago there were no mass-produced electric cars on U.S. highways. Today, there are one million and automakers are investing big to make millions more.

Cheaper Solar – Solar power has grown but accounts for only 2 percent of U.S. electricity. The new goal for the Department of Energy is to lower the cost of solar another 50 percent.

Fusion – This is the ultimate green energy dream: make electricity on earth the way the sun makes it. Instead of splitting elements, combine them and make clean, almost limitless energy without waste.

Advanced Computing – China, Japan, the U.S., and the European Union all want to be first in advanced computing. The U.S. regained the number one spot last year thanks to sustained funding by Congress during both the Obama and Trump administrations. This is the first tool the New Manhattan Project needs.

Double Energy Research Funding – The second tool is money. It would take $6 billion annually to double funding for the Department of Energy's Office of Science and its 17 national laboratories, which are where most of the nation's basic energy research is done. The cost of the Green New Deal is trillions annually.